HD3

1151 Duryea Ave, Irvine, CA 92614, USA
Phone: (949)852-8404 FAX: (949)852-1226
http://www.ffv.com

The design of the HD3 and the HD3 Manual is proprietary.
No part of the HD3 may be copied or modified without the written consent of Fast Forward Video, Inc. Printed in the U.S.A.
January 2010

User's Manual

Table of Contents

Maintenance 3

Overview 5

Drive Installation 6

Formatting Drive(s) 7

Rear Panel Connections 8

Front Panel Controls 9

Touch Screen Menus 10

Main Menu 12

Settings Menu 12

Front Panel Menu 14

Record Menu 15

Playback Menu 15

Disk Menu 16

Edit Menu 17

Play List Menu 19

Updating Firmware 20

Post Production 23

Specifications 25

Warranty 26

Maintenance

Precautions: The HD3 has been built to meet the demands of internal or external environments; however, the hardware is subject to the same dangers from static as any other electronic device. Use care when connecting or disconnecting cables.

Important: Take care not to introduce any moisture into the unit. Electronic assemblies are sensitive to static electricity, due to the electrostatically sensitive devices used within the circuitry. All semiconductors, as well as some resistors and capacitors, may be damaged or degraded by exposure to static electricity.

If you experience any problems with the unit please call Fast Forward Video's service department. DO NOT ATTEMPT to repair or modify the unit as this might cause further damage, which could void your warranty. A technician can decipher whether your problem is caused by a faulty component, and determine whether you need to return it for evaluation and/or repair.

Cleaning: The chassis should only require dusting with a soft cloth. Solvents may harm the painted surface and leak to the inside causing severe damage. If you work in a dusty environment, periodic dusting within the unit using forced air is recommended.

Operation and Storage Environment: Due to the nature of the hard drives used with this device THE UNIT MUST BE USED IN A WELL VENTILATED AREA. Do not cover or block the ventilation area and try to avoid areas with excessive heat, which may cause the video card to malfunction.

PACKAGE CONTENTS (May vary depending on model)

1 HD3
1 CD (includes user manual and MAC/PC component)
1 POWER CABLE a standard 3-pin power cable
1 DB-9 Cable (KEEP IT HANDY FOR FIRMWARE UPDATES)
1 Gender changer used with converter (KEEP HANDY FOR FIRMWARE UPDATES)

If hard drives were ordered or dropped shipped to us they will come already installed in the unit and tested.

Maintenance (Continued)

PLEASE RETAIN THE ORIGINAL SHIPPING CARTON AND FOAM. If you need to return the unit for service or upgrade it is STRONGLY recommended that you use the original carton and foam, which were specifically designed to protect it from damage while in transit. IF RETURNED IN SOMETHING OTHER THAN ORIGINAL PACKAGING, A FEE WILL BE ASSESSED FOR THE USE OF NEW SHIPPING MATERIALS WHEN RETURNED BACK TO YOU. A PROTECTIVE METAL SHIPPING CASE IS ACCEPTABLE.

FCC information to the user:
This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2). This device must accept any interference received, including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for a class a digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case, the user will be required to correct the interference at his/her own expense.

Overview

The HD3 hard case is a compact, all-in-one system perfect for any video production application. Available in either single and dual channel configurations, it delivers all the advantages of HD images and the random access non-linear benefits of hard disk media.

Instantly view recorded material from a standard 2.5” drive on the integral HD monitor. Single and dual channel units offer removable, hot swappable 2.5” SATA drives compatible with Elite HD and features a USB port for video download.

Features:

- Front Panel Touch Screen Control
- RS-232 Machine Control
- Records JPEG2000 .mov file in HD or SD
- Data rates up to 100 Mbit/s per channel
- 4:2:2 Sampling
- 10 bit quantization
- 8 embedded audio channels per HD video channel
- 4 embedded audio channels per SD video channel
- Up to 4 channels AES audio per video channel
- 1 channel line level unbalanced analog audio per video channel
- NTSC and PAL
- Conforms to industry digital specification SMPTE 259M-C and SMPTE 292(HD-SDI)
- Genlock input
- SMPTE/EBU Longitudinal time code
- Chase Lock
- Discrete access to every frame
- Loop Record Feature
- Instant Cueing, Clip Recall
- Play list Management and clip naming from the front panel
- Dynamic Tracking
- Variable Speed Noise-Free Playback Forward and Reverse

Drive Installation

We recommend that you have the drives installed, formatted and tested by Fast Forward Video. However, you may install the drives by following the procedure below. We ONLY recommend specific hard drives - see http://www.ffv.com/page/support.htm for part numbers. These specific drives have been tested with the HD3, and proven to have the best performance and reliability.

2.5” Drive Removal/Replacement Procedure:

1. On the side of the HD3 push black button drive release.
2. To install a drive remove the two screws from the rear panel of the drive enclosure.
3. Remove the circuit board from the drive enclosure.
4. Attach the 2.5” SATA hard drive to the circuit board, and fasten it to the board using drive mounting screws.
5. Once the hard drive has been secured on the circuit board, replace the circuit board (with hard drive attached) in the drive enclosure (drive facing up). Fasten the rear panel of the drive enclosure, using the screws that were removed in step #3.
6. Slide the drive back into the enclosure bay.

Formatting Drives

Formatting Drives (Dual Channel):

1. Install the drives.
2. Turn on power and wait for the deck to recognize drives %.
3. Touch “Disk %” located in upper left hand corner on either channel (see figure 1).
4. Touch “Disk” within the Main Menu.
5. Touch “Clear Disk” within the Disk Menu.
6. Touch “Yes” to Clear Disk.
7. Touch “Yes” to Confirm Clear Disk.
8. Repeat process for channel two.

Formatting Drive (Single Channel):

1. Install the drive.
2. Turn on power and wait for the deck to recognize drives %.
3. Touch Menu Box (see figure 2).
4. Touch “Disk” within the Main Menu.
5. Touch “Clear Disk” within the Disk Menu.
6. Touch “Yes” to Clear Disk.
7. Touch “Yes” to Confirm Clear Disk.

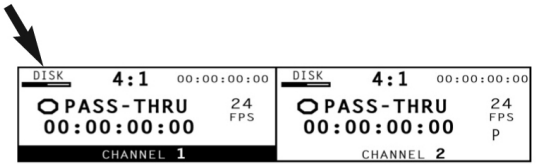
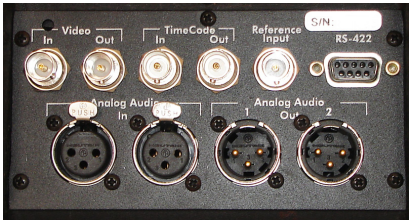


Figure 1

Figure 2

Rear Panel Connections



(Single Channel Shown Above)

1. VIDEO IN = SD/HD-SDI input BNC connectors.
2. VIDEO OUT = SD/HD-SDI output BNC connectors.
3. TIME CODE IN = Input BNC connectors for longitudinal time code.
4. TIME CODE OUT = Output BNC connectors for longitudinal time code.
5. REF INPUT = Use this connector for Genlock. The signal must conform to broadcast specifications which is RS-170 for NTSC. Composite video or black burst are acceptable. DO NOT connect non-standard signals to the HD3 Deck, or the picture WILL distort.
6. RS-232 = Machine Control (DB9 CONNECTOR) - This connector is for controlling the deck or updating firmware from an external RS-232 device or PC. Please note when using the RS-232 with a controller it is recommended to lock the front panel.
7. ANALOG AUDIO IN = Stereo balanced XLR connectors.
8. ANALOG AUDIO OUT = Stereo balanced XLR connectors.

Front Panel Controls

1. **POWER SWITCH:** Turns the unit on / off. Please allow at least 30 seconds after turning the unit on for it to boot-up and recognize the disk.

2. **PASS-THRU:** The red LED above the record button will light up indicating that it is in digital pass-thru mode, which indicates it is record ready. A corresponding message will be displayed in the mode indicator area located in the center of the LCD touch-screen panel.

3. **RECORD:** To start recording press and hold the red record button and then press the play button. A RECORD message and the time code sequence will be displayed in the main menu screen to indicate the recording process has been initiated and video data is being recorded onto the storage media.

4. **PLAY:** To PLAY from the beginning, press the "<<" button (notice that in NATIVE mode, it is instantaneous, no waiting for shuttle back). The time code display will indicate that you are at 00:00:00:00 and the reference monitor hooked up to the HD3 Deck will jump to the beginning of the disks recorded video material. Press the play button to view the recorded video material. In BVW-75, the "<<" will rewind to the beginning of the hard drive at 30X speed.

5. **STOP:** Terminates both the play and record functions but will not clear the screen. Please note that when recording long clips wait 30 seconds before selecting another command - to allow for the clip to close.

6. **CHASE LOCK:** To enable this feature, simply press and hold the PLAY and STOP buttons simultaneously for 2 seconds and a corresponding message will be displayed in the mode indicator area located in the center of the LCD touch-screen panel. If feeding time code into the HD3 Deck, that channel will lock to the incoming time code during playback.nel X" at the bottom of the LCD touch screen.

Front Panel Controls (Continued)

7. **SHUTTLE / SCAN SELECT:** This allows you to choose between a variety of noise-free slow motion speeds as well as fast motion scans. Press this button to select the corresponding LED to change modes. The orange light places HD3 Deck in scan mode and the green light in slow motion. Once you have selected the desired mode use the forward and reverse buttons located to the left and right of the select button.

8. **STEP BACK <:** Press to step the HD3 Deck backward one frame. Each subsequent press equals one frame.

9. **STEP FORWARD >:** Press to step the HD3 Deck forward one frame.

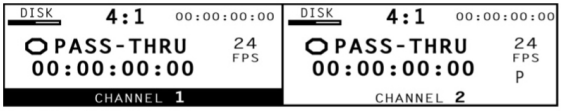
10. **REWIND (START POINT):** Press to jump back to the first frame of a selected clip. Press and hold to jump back to the first frame of video on the hard drive.

11. **FAST FORWARD (END POINT):** Press to jump forward to the last frame of a clip. Press and hold to jump to the last frame of video on the hard drive.

12. **JOG / SHUTTLE WHEEL:** Similar to a traditional analog tape deck, this wheel acts and feels the same. In addition to machine control, this wheel is also used for selecting various options in some of the menus accessed from the front panel's touch screen.

Touch Screen Menus

An LCD touch-screen panel with a menu of options and a variety of parameters used to operate the HD3's functions. To lock both channels together for simultaneous control, simply touch the vertical line that separates the two channels, until they are both highlighted. Either channel is selectable by touching "Channel X" at the bottom of the LCD touch screen.



Dual CH & SPR LCD Touch Screen

Single CH LCD Touch Screen

Touch Screen Menus (Continued)

1. TIME CODE DISPLAY: Displays the assigned Time Code for the frame in use.
2. MODE INDICATOR: The current transport mode will be displayed directly above the Time Code in the center of the touch screen, such as: RECORD, PASS-THRU, PLAY, REV 1/3, FWD 3x, STOP, etc.
3. DISK CAPACITY INDICATOR:

   Single Channel - This icon is located on the top right of the touch screen and displays the percentage of disk space used.

   Dual Channel - This icon is located on the top left of the touch screen and displays the percentage of disk space used.
4. FIRMWARE ICON:

   Single Channel - Firmware information appears when you touch the question mark in the upper left hand corner of the screen.

   Dual Channel - Firmware information is located in main menu which is accessed by touching the disk capacity indicator.
5. MENU ICON

   Single Channel - The menu icon appears as a tiny rectangle at the top of the screen, this is where you will find most of the main functions for the HD3 Deck.

   Dual Channel - The menu icon appears when you touch the disk capacity indicator located at the top left corner of each channel.
6. GO TO ICON

   Single Channel - Press the arrow located in the upper right hand corner to select the “GO TO” function which allows you to mark one frame of video to jump back to immediately upon request. You can store only one selection at a time.

   Dual Channel - Press the time code located in the upper right hand corner of the recording channel to mark one frame of video to jump back to immediately upon request. You can store only one selection per channel.
7. HOME ICON

   Single Channel - The Omega symbol is the home icon located in the upper right hand corner.

   Dual Channel - The Omega symbol is the home icon located in the upper right hand corner of each channel. Pressing the home icon will return you to the main display from any other screen.

   “S” OR “P” Indicates whether deck is currently in a Source list (S) or a Play list (P)

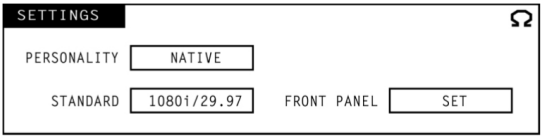
   A letter ‘S’ in the bottom right corner of the touch screen indicates that you are playing back material from the source list. A ‘P’ indicates that a play list is loaded.

Main Menu

To access the menu and adjust any of the settings on the HD3 Deck, simply touch the menu icon. Each of the choices listed on the main menu have sub-menus.

MAIN MENU: Dual CH Shown - Single CH missing firmware menu).

Settings Menu



PERSONALITY: Using this command, you can select among Native Mode, which uses Odetics extensions in the RS-422 protocol and BVW-75, which equates to a Sony BVW 75 protocol.

RECORDING IN NATIVE MODE: Native mode is the most natural state for the HD3 Deck to operate in as it utilizes the random access capabilities of the hardware most effectively.

As you record material to the HD3 Deck it stores the material in the available space on the storage media. When it gets to the time code point you have selected for the inserted material, it jumps to that point on the drive--wherever that may be--plays it, then returns to the original section.

Note: Play list functionality is only available in Native mode

RECORDING IN BVW-75 MODE: Recording in BVW-75 mode will allow you to record anywhere on the disk regardless of whether or not it has previously recorded material. You can

begin recording by cueing to the point you wish to begin and pressing stop to end the recording. Linear mode is a simulation of an existing VTR. The HD3 Deck, in linear mode, is forced to adhere to strict record guidelines as if it actually were a tape deck. If you would like to operate the HD3 as a VTR, make sure you have selected BVW-75 mode from the SETTINGS menu, PERSONALITY sub menu of the front panel. You can then record over existing material as you would with a VTR.

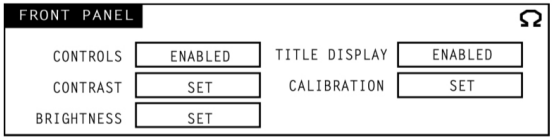
NOTE: The disk MUST have space available to record the replacement video and will delete the overwritten video when recording stops. **Also when using this personality you are unable to record in the QuickTime file format.**

The main feature of this mode is the ability to insert edit material over previously recorded material. The HD3 Deck, in BVW-75 mode assumes that it has a 24 hour tape of "black" which has time code assigned from 00:00:00:00. If you were to tell the HD3 Deck to record a 10 second clip at 00:01:00:00 for 10 seconds, it would record this and the machine would then assume it had 1 minute of black, 10 seconds of video from the 1 minute time code mark, and then 23:58:50:00 of black after this. If you want to record over this clip and add new information, it will insert the video at the same points and overwrite the data on the drive in the same way, always maintaining the 24 hours of time code as the master reference. Note: Play list functionality is NOT available in BVW-75 mode.

NOTE: If you record material in BVW-75 mode, the HD3 Deck uses the 24-hour time code as reference, which is still visible to the machine when you switch to Native mode. However, when you record material in native mode and then switch to BVW-75 mode the machine does not recognize the native source list. You should always record in BVW-75 mode if you intend to switch between personalities.

STANDARD: Allows you to choose the recording format being received by pressing the box to scroll through the supported resolutions.

Front Panel Menu



FRONT PANEL: This sub menu allows you to access the front panel's brightness/contrast setting capability, and to disable the front panel controls for uninterrupted record or play.

CONTROL: "Enable" allows you to control deck using the LCD touch screen and "Disable" allows you to turn off the front panel controls for uninterrupted recording or playing.

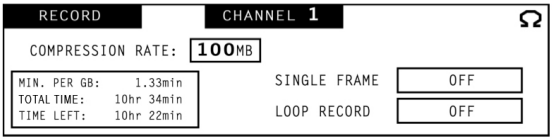
CONTRAST: Gives you the option to increase or decrease the contrast on the LCD touch screen by turning the Jog/Shuttle Wheel. Choose "OK" to save your changes or "Default" to go back to manufacturer setting.

BRIGHTNESS: Gives you the option to increase or decrease the backlight brightness on the LCD touch screen by turning the Jog/Shuttle Wheel. Choose "OK" to save your changes or "Default" to go back to manufacturer setting.

TITLE DISPLAY: Shows the title of the clip being played.

CALIBRATION: Allows you to change the size of the menu within the LCD touch screen.

Record Menu



COMPRESSION LEVEL: The JPEG2000 compression setting is set at 100 Mbit/s HD or 50Mbit/s SD on all versions of the HD3 Deck.

MIN. PER GB: This screen gives you a basic reading of the minutes of storage generally available with the corresponding compression setting.

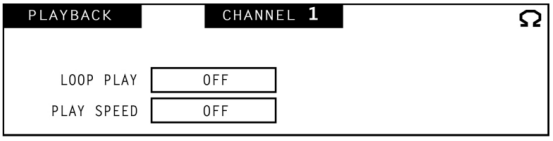
TOTAL TIME: This number relates to the amount of time available for recording, based on the approximate minutes per gigabyte and the size of the storage media.

TIME LEFT: This figure will give a quick reading of approximately how much time is left for recording.

SINGLE FRAME: Enable single frame to record a single frame at a time.

LOOP RECORD: This function loops across available space when current recording starts.

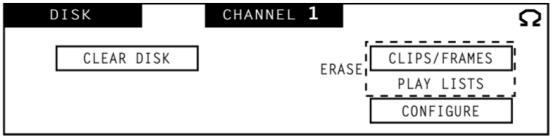
Playback Menu



LOOP PLAY: Allows you to play a segment of designated video in Loop mode, endlessly.

PLAY SPEED: By touching the play speed box the play speed menu will be displayed–press the arrows to change the frames per second. Press OK to save the selection. To return to the default press the 1/1 square.

Disk Menu

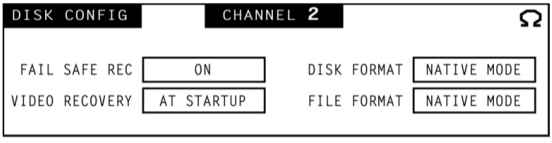


CLEAR DISK: Will format the drive for the selected channel.

ERASE – CLIP/FRAMES: Allows individual clips to be deleted or trimmed. The trim will permanently remove frames from the specified clip.

ERASE – PLAY LISTS: Allows individual play lists to be deleted.

Disk Configuration Menu



FAIL SAFE: If turned on will save clips during a power disruption.

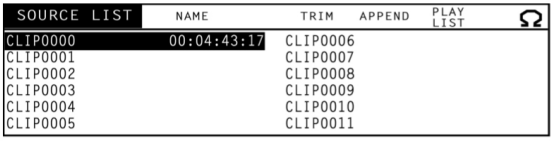
VIDEO RECOVERY: If activated will try and save corrupted clips when power is restored.

DISK FORMAT: Gives you options when formatting disks (i.e. DOS FAT32, Default, Native MOE)

FILE FORMAT: Gives you the option of file formats while recording (i.e. NATIVE MOE or QuickTime)

Please note when recording to QuickTime the disk format must be set to DOS FAT 32.

Edit Menu



In order to access the Edit Menu you must be in STOP Mode (Press << on the front panel).

SETTING UP A PLAY LIST:

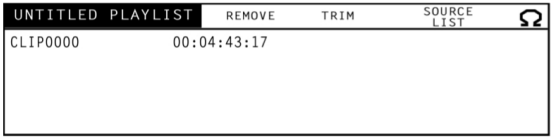
Play list = Is a series of clips you designate to play in a specific order taken from the master source list.
Source list = Is the master footage recorded on the HD3.

1. Enter the Edit Menu - which will display the source list and a sequence of clips. Please note that you may have more than one file per clip depending on the size of the recorded material (2 GB file size limit).

2. Choose the appropriate clip by turning the shuttle wheel.

3. Choose the APPEND selection located on the touch screen LCD.

4. Choose the PLAY LIST selection located on the touch screen LCD to move from the source list to the play list menu.



5. Choose the UNTITLED PLAY LIST to rename the play list of your choice.

6. Choose the UNTITLED PLAY LIST to erase the name and enter a new name using the alphabet provided (see figure 1). Please note to change between the alphabet and numbers choose the box area of the rectangle located to the right of the OK selection.

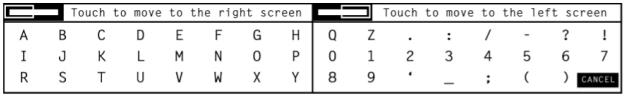
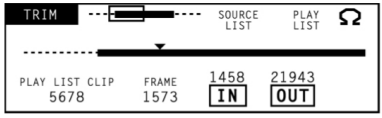


Figure 1

Edit Menu (Continued)

7. Choose OK to save name.

8. Choose REMOVE to remove clips from the play list highlight the clip using the shuttle wheel.



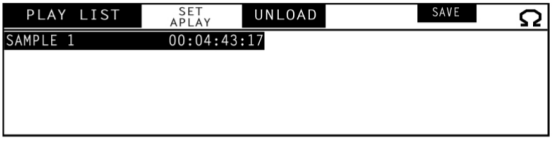
9. Choose TRIM to edit a clip in the designated play list. You may review the clip by pressing play, turning the shuttle wheel, or using the step forward/back buttons located on the front panel. Select the desired start point by pressing the IN button and the end point by pressing the OUT button. Note that the thick dark line in the middle of the screen is now a shorter line, which indicates the size of the clip you have just created. If you have a large clip and wish to scroll through it quicker you can use the zoom feature located at the top of the screen near the upper left corner of the window. Choose PLAY LIST to save designated footage. Choose DISCARD CHANGES to go back to original footage.

10. Exit Edit Menu by choosing the Omega Symbol in the upper right corner.

11. Enter the Play List menu and choose SAVE to save the play list.

Play List Menu

Once you have created a play list within the Edit Menu the final step will be to enter this menu and save the play list (see Edit Menu for step by step instructions). Please note the Play List option is only available if you are using Native mode.



PLAY LIST: Lists all the saved play lists set-up within the Edit Menu.

SET APLAY/CLEAR APLAY: Configures the HD3 to automatically play a chosen play list on power up.

LOAD/UNLOAD: In the upper left portion of the play list menu, there is a feature named aplay load. With this feature, you can designate one play list to automatically begin to play on power up, as soon as the hard drive is initialized.

ACTIVE SAVE: When you add to, change, or rename your play list, you need to save it. To save your play list, select play list from the main menu, notice the word SAVE is highlighted, press it and the play list is saved.

STORING MULTIPLE PLAY LISTS: If you wish to make a new play list with another name, choose an existing play list and remove all or part of the clips from it. You can make the necessary changes to the new play list, re-name it and you now have multiple play lists to choose from. Once you have more than one play list you must select play list from the main menu and activate the one you wish to use by loading it.

DELETING A CLIP AND / OR A PLAY LIST: See Disk Menu options. Please note that you must UNLOAD a play list before deleting.

Updating Firmware

Allows you to update and verify firmware version

New features for the HD3 are posted to our website as they become available. Our customers have access to these features via firmware updates for the lifetime of the product. Please check this site regularly to implement the newest changes. Firmware updates are located at http://www.ffv.com/page/support.htm. **PLEASE BE AWARE SOME FIRMWARE UPDATES WILL NOT ALLOW YOU TO PLAY OLD FOOTAGE (see firmware notes).**

Locate the latest revision of firmware – filename xxx.fud. Make sure to download and unzip the fud file so it will be seen during the updating process.

Connect the HD3 to your computer:
1. Connect DB-9 cable to RS-232 side of converter
2. Connect other side of DB-9 cable to serial port of computer

(If the computer does not provide a 9 pin serial port, a USB to Serial converter is necessary – Keyspan (part number USA-19HS) makes an inexpensive one that works well. If using a USB to serial converter please make sure the driver has been downloaded onto your computer)

Once the HD3 is connected to your PC or MAC please use one of the four methods to upload the firmware.

Hyper Terminal - PC compatible with Windows XP or below
ZTerm - MAC compatible

HYPER TERMINAL

Program is PC compatible with Windows XP or below

1. On the HD3, go to menu - firmware - touch “Update at 57600 Baud” - the LCD will display “Waiting for Firmware Update”.

2. Open HyperTerminal program on your PC
   Start Menu – Accessories – Communications – HyperTerminal
3. Optional message – “Default Telnet Program?” select NO
4. CONNECTION DESCRIPTION: FFV, choose an Icon, OK (see figure 1).
5. CONNECT TO: Connect using: COM**

Updating Firmware (Continued)

This will display the COM port that the unit is currently connected to, which may vary - if no COM port is listed check connections and make sure Serial to USB drivers have been downloaded) – click OK.

6. COM* Properties (see figure 3)
   BITS PER SECOND: 57600
   DATA BITS: 8
   PARITY: NONE
   STOP BITS: 1
   FLOW CONTROL: NONE
   Click APPLY & OK

7. HyperTerminal will display “Firmware Update Utility” is ready for update when “CCCC…” is displayed.

8. Select TRANSFER Menu – “Send File”

9. Browse and select the unzipped fud file – change Protocol to “Xmodem” – SEND

10. The “Xmodem file send for FFV” menu will show the update progression

11. Update complete close program.

12. Cycle HD3 power OFF then ON for update to take effect

13. Repeat steps for front panel and video channel firmware updates

ZTERM

Program is MAC compatible - download at http://www.versiontracker.com/dyn/moreinfo/macosx/10529

1. On the HD3, go to menu - firmware - touch “Update at 57600 Baud” - the LCD will display “Waiting for Firmware Update”.
2. Open ZTerm program on your MAC - this will scan for the appropriate COM port and connect with the Omega. If this fails check all the connections and make sure any necessary drivers have been downloaded.
3. ZTerm Local screen will display “pooooo…”

Updating Firmware (Continued)

4. Settings – Connection - change to:

   DATA RATE: 57600

   DATA BITS: 8

   PARITY: NONE

   STOP BITS: 1

   FLOW CONTROL: Xon/Xoff

   Click OK

5. ZTerm Local screen will display “CCCCC…”
6. Go to “File”- “Transfer Covert” and select “Binary Data”
7. File – Send Files – Xmodem-1K
8. Browse and select the unzipped fud file – open
9. Xmodem Send menu will show the update progression
10. Update complete close program.
11. Cycle HD3 power OFF then ON for update to take effect
12. Repeat steps for front panel and video channel firmware updates

Post Production

Recommended System Requirements:

Windows	MAC OS
2GHz or faster processor for DV; 3.4GHz for HDV; dual 2.8GHz for HD*	Multicore Intel® processor
Microsoft® Windows® XP with Service Pack 2 (Service Pack 3 recommended) or Windows Vista® Home Premium, Business, Ultimate, or Enterprise with Service Pack 1 (certified for 32-bit Windows XP and 32-bit and 64-bit Windows Vista)	Mac OS X v10.4.11–10.5.4
2GB of RAM	
10GB of available hard-disk space for installation; additional free space required during installation (cannot install on flash-based storage devices)	10GB of available hard-disk space for installation; additional hard-disk space required during installation (cannot install on a volume that uses a case-sensitive file system or on flash-based storage devices)
1,280x900 display with OpenGL 2.0–compatible graphics card	1,280x900 display with OpenGL 2.0–compatible graphics card
Dedicated 7200 RPM hard drive for DV and HDV editing; striped disk array storage (RAID 0) for HD; SCSI disk subsystem preferred	Dedicated 7200 RPM hard drive for DV and HDV editing; striped disk array storage (RAID 0) for HD; SCSI disk subsystem preferred
QuickTime 7.4.5 software required to use QuickTime features	QuickTime 7.4.5 software required to use QuickTime features

Post Production (Continued)

Installation of FFV's JPEG 2000 Support Components

Before you can view the JPEG 2000 mov file you must install one of the below components. Just extract them from their archives and copy to their proper location (see below). Please note if you are updating from a previous component version you will need to delete the older component before installing. If you are unable to delete please log off and log back into your computer which will unlock the component from your system.

QuickTime Component for Windows

QuickTime_Win_DATE.zip

Extract and copy it to the QuickTime system directory - "C:\Program Files\QuickTime\QT-System".

QuickTime Component for OS X (Intel based Macs only)

QuickTime_MAC_DATE.zip

Extract and copy it to the QuickTime system directory - "/Library/QuickTime".

Moving Clips to NLE System

1. Connect drive enclosure to computer using a USB cable. Please note to efficiently move the clips use the USB located on the hard drive tower.

2. Once your computer recognizes the drive - open the drive and a list of 2GB clips will be displayed in the appropriate order. Please note all drives must be formatted in FAT32. Helpful Hint - another sorting method would be to set-up the internal clock (see Setting Clock instructions).

3. Move the selected clips to your computer. Please note it is more efficient to edit clips from your computer than directly from the drive.

4. Place clips within NLE system and edit accordingly.

Please Note: NLE systems do not support native rendering using JPEG2000; until they do, rendering must be done using one of the native codecs.

Specifications

VIDEO INPUT/OUTPUT

Digital Input/Output:	SD/HD-SDI
Standards:	SMPTE 274M (1080i) SMPTE 296M (720p) SMPTE 347M (NTSC & PAL) SMPTE 334M-1 (closed caption) SMPTE 334M-2 (closed caption) SMPTE RP188 (ancillary time code)
Genlock Input:	60 Hz: Blackburst SMPTE 170 M; 50 Hz: ITU-R BT.470; 75 ohm
Supported Resolutions:	1080i/60/59.94/50 (1920 x 1080/60/59.94/50/2:1 Interlace) 1080s/23.98/24.00 720p/60/59.94/50 (1280 x 720/60/59.94/50/Progressive) 720p/23.98/24.00 NTSC (720 x 486/59.94/2:1 Interlace) PAL (720 x 576/50/2:1 Interlace) Supports 4:3 or 16:9 aspect ratio
Connections:	BNC 75 ohms

DIGITAL AUDIO INPUT/OUTPUT

Digital Input/Output:	8 Channels embedded HD-SDI 4 Channels embedded SD-SDI
Connections:	BNC connectors unbalanced

DIGITAL AUDIO SPECIFICATIONS

Resolution:	24 bits
Audio Channels:	HD embedded 8 in/8 out SD embedded 4 in/4 out
Sampling Rate:	48 KHz

ANALOG AUDIO INPUT/OUTPUT

Analog Input/Output:	Stereo Balanced
Connections:	XLR Connectors

ANALOG AUDIO SPECIFICATIONS

Resolution:	16 bits
Audio Channels:	2 in 2 out (per video channel)
Dynamic Range:	80 dB
Harmonic Distortion:	022%, -73dB
Output Impedance:	600 ohms
Sampling Rate:	48 KHz
Passband:	.045 FS
Passband Ripple:	+/- 0.1 dB

COMMUNICATION INTERFACE

RS-232 Interface:	38400 baud
Protocols:	Sony Remote - 1 (9 Pin) Odetics Fast Forward Video Native

HARD DRIVES

Maximum Hard Drives:	1 per channel
Supported Hard Drive	2.5" SATA HDD or SSD Drive
Enclosure:	Supports 9.5mm drive height
Preferred SATA Drive:	Hitachi Cinema Star 2.5" - C5K320 (120GB)
Acceptable SATA Drive:	Hitachi Enhanced 2.5" - 0A55263 (120,250,320GB)
SSD Drive:	Super Talent and RiData

TIME CODE

SMPTE/EBU	Longitudinal (LTC)

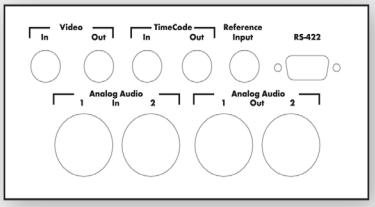
VIDEO COMPRESSION

Method:	Motion JPEG2000
Maximum Bit Rate:	HD:100Mbit/s SD: 50 Mbit/s

GENERAL

Physical Dimensions:	13.37" x 11.62" x 6.00" Pelican Case 1400 (Single Channel)
Power Supply	12V XLR Connector
Power Consumption:	75 Watts
Operating Temperature:	0c to 50c
Humidity:	90% relative humidity with no visible condensation

WARRANTY 1 Year



(Single channel shown)

Specifications subject to change

Fast Forward Video
1151 Duryea Avenue
Irvine, California 92614

www.ffv.com
sales@ffv.com

Ph. 949.852.8404
Fx. 949.852.1226

Limited Warranty

12 – MONTH LIMITED WARRANTY

Fast Forward Video, Inc. warrants to the original purchaser that the product (Hardware and components) shall be free from defects in material and workmanship for a period of 1 year from the date of purchase. If a defect covered by this warranty occurs during this 1 year period, Fast Forward Video, Inc. will repair or replace the defective product or component, at its option, free of charge.

WARRANTY LIMITATIONS

THIS WARRANTY SHALL NOT APPLY IF THIS PRODUCT: (a) IS DAMAGED BY NEGLIGENCE, ACCIDENT, MISUSE, OR BY OTHER CAUSES UNRELATED TO DEFECTIVE MATERIALS OR WORKMANSHIP; OR (b) HAS HAD THE SERIAL NUMBER ALTERED, DEFACED, OR REMOVED.

ANY APPLICABLE IMPLIED WARRANTIES ARE HEREBY LIMITED IN DURATION TO THE WARRANTY PERIOD DESCRIBED ABOVE. IN NO EVENT SHALL FAST FORWARD VIDEO, INC. BE LIABLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES RESULTING FROM THE BREACH OF ANY IMPLIED OR EXPRESS WARRANTIES. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS OR EXCLUSION OF CONSEQUENTIAL OR INCIDENTAL DAMAGES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

HD3

FFV Fast Forward Video

1151 Duryea Ave, Irvine, CA 92614, USA
Phone: (949)852-8404 FAX: (949)852-1226
http://www.ffv.com

The design of the HD3 Deck and HD3 Deck Manual is proprietary.
No part of the HD3 Deck may be copied or modified without the written consent of Fast Forward Video, Inc. Printed in the U.S.A.